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ABSTRACT

Two studies investigated the effectiveness of the A-Priori reading intervention program, which uses pre-teaching in an effort to provide at-risk students (who qualify for the Chapter 1 program) with prior knowledge before the regular instruction on the same objectives and topics. In the first study, subjects were a control group of 207 students in the traditional Chapter 1 remedial program and an experimental group of 308 students in the A-Priori program involved in a pilot program in Vermilion Parish, Louisiana. In the second study, subjects were 16 students in a pilot program in St. Landry Parish, who were followed for a 2-year period. Subjects' scores on the California Achievement Test were compared. Results of both studies were similar--no statistically significant differences in subjects' scores were found. Both school districts decided to expand and enlarge the A-Priori program before the completion of the two studies. Teachers and administrators preferred the A-Priori approach. Findings suggest that the A-Priori approach may be valid, but educators should not necessarily expect significant improvement on standardized tests. (Contain 19 references and 5 tables of data.) (RS)

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AN ANALYSIS OF A-PRIORI READING INTERVENTION

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There can be no question that reading is fundamental to success in school, and in life. It has been said (Slavin, 1991) that the best approach to compensatory education should be to ensure that students are successful the first time they are taught to read so they do not become remedial readers. None the less, it has been estimated (Bond and Tinker, 1984) that from 10% to 25% of children are seriously behind in their reading ability. Because of the need for remedial reading, the federal government has endeavored to provide funds for helping selected students improve on their reading achievement. Chapter One of the Education Consolidation and Reading Act of 1981, which replaced Title One of the Elementary and Secondary School Act of 1965, represents a major and continuing thrust to provide the necessary instruction. The major goals of the program include helping children succeed in the regular reading program, attain grade level proficiency, and improve achievement in basic skills (Department of Education, 1988). An underlying philosophy to Chapter One programs was that it should supplement and not supplant the efforts of school districts (Stonehill and Groves, 1985).

School districts are able to design their own specific reading programs tied to quantitative measures to evaluate performance. Some approaches have failed (Allington, 1987) while others have reported success (Kennedy, 1981; Killian, 1981; Tompkins, 1983). One author (Dorr, 1983) suggested that there are seven attributes to successful programs:

1) Close attention to a continua of reading skills along with emphasis on reading for comprehension.
2) Specialization of instruction in reading.
3) Strong, highly experienced teachers with high standards and expectations of performance.
4) Stability of the program and key staff members.

5) An emphasis on writing concomitant with reading skills.

6) Teacher participation in the decision making process.

7) A high degree of rapport and mutual respect among professional staff.

Unfortunately, many districts misinterpreted the legislative intent and guidelines of Chapter One (Kimbrough and Hill, 1981) which may be one cause of a lack of more universal success. Districts were simply not aware of the significant flexibility available to them in providing services (Vanecko, Ames, and Archambault, 1989). Some districts were of the opinion that the instruction had to be different from the regular classroom rather than in addition to regular instruction (Kimbrough and Hill, 1981). As a result many of the programs stressed simple and repetitive workbook exercises (Allington, 1987; Savage, 1987) which resulted in a feeling that only skills were being stressed (Conroy, 1988).

With the growing importance of the whole language philosophy some researches argue that learning style (Carbo, 1987) or general language development approaches (Anderson, Heibert, Scott, & Wilkinson et al, 1985; Brazze. 1985; Fillion, 1983) which integrate all aspects of language development are preferable to isolated skills based instruction. It was also shown (Brazee, 1985) that using content reading as a means to incorporate skills provides for greater transfer of learning. It has frequently been shown (Manzo and Manzo, 1990; Conroy, 1988; Spencer,1988; Chew, 1987; Busis, 1982) that teaching reading as a whole process and utilizing children's prior knowledge upon which to build is more desirable then teaching skills in isolation. It is this principle upon which the A-Priori intervention program is based.

The A-Priori Intervention Program

A-Priori literally means "coming before." It may be looked at as pre-teaching in an effort to provide students with prior knowledge before the regular instruction on the same objectives and topics. The approach was developed in the Dallas Independent School District. While there may be variations in implementation designs, the basic approach is to provide pre instruction.

In the programs reported in this article, Chapter One students were provided with thirty to forty-five minutes of instruction each day. The instruction came at least one week in advance of when the same topics would be taught in the regular reading or language arts class. Depending on the week, 20% to 80% of the A-Priori instruction utilized a whole language approach.

In each of the districts reported in this article, both aides and teachers were in-serviced on the approach by professionals from the Dallas Independent School District. Also, in each case the students were pulled from non basic academic time to be provided with the supplemental instruction.

Each class consisted of up to sixteen students, a teacher, and an aide. In cases where class size was small, the class may have been conducted without an aide. The instructional design differs from the traditional approach in several ways:

1) Traditional approaches usually focus on the teaching of reading sub-skills while the A-Priori approach focuses on connected text and practice activities.
2) The traditional approach frequently conflicts with the curriculum being taught in the regular class while the A-Priori approach uses materials which closely relates the the actual classroom materials and content.
3) In the traditional approach students find it difficult to generate self esteem since they are working on remedial skills while in the A-Priori approach the probability of enhancing self concept is improved by pre-teaching

material, thus giving the students a head start on the material they will learn in the regular class situation.

Planning Using A-Priori

Planning requires close contact between the teacher and aide working in the A-Priori program and the various classroom teachers. Prior to the start of each grading period teachers and aides must confer on what will be taught in the regular class during the next grading period. During the conference the specific stories to be used in the regular class, along with the new vocabulary, are reviewed. The A-Priori team then selects other, similar stories which utilize the same vocabulary. Very frequently the team will write their own stories using the new words. By following this procedure it is possible to pre-teach the skills and vocabulary without using the same material that will be used in the regular class. This effectively increases engagement time on the topic which should improve the success of the targeted students.

In addition to the periodic long range planning sessions, described above, teachers meet on a weekly basis to discuss individual student progress. These regular contacts make it possible for the team to vary the type of exposure for individual students who may manifest a specific difficulty. Using this collaborative approach also permits more extensive and reliable assessment of student performance.

Daily planning requires the use of multiple strategies in each lesson. In general each lesson may be divided into four parts:

1) Introductory Activity designed to be a warm up for the class to assure that students are ready for the day's lesson.

2) A vocabulary activity during which time new words are introduced to the students at least one week prior to those words being introduced in the regular class.

3) A comprehension activity where words are used in context reading and students must be able to compare and contrast the new words.

4) A summary activity designed to let students reflect on the new vocabulary and meanings.

Some Strategies Used in A-Priori Lessons

During the first phase of the introduction the teacher or aide reads aloud from a carefully selected book or story. The stories used will contain some new vocabulary and allow students to hear those words pronounced correctly. During the second part of the introduction the class "drops everything and reads" (DEAR). The DEAR activity is typical of the whole language approach and provides for 5-10 minutes of required silent reading using material which is self-selected by students. A variation used for first grade students is called "booklooking." In using booklooking first graders may look at books, pretend read, and tell stories. In booklooking very familiar stories are used , frequently along with illustrations, to assist the young reader.

During the second phase of the lesson the word list is introduced and each student must read it aloud for pronunciation. This is a first day activity while the balance of the week is spent reading passages or stories with the new words. Each day students are encourage to reach their "personal best" which translates to reading further in the story before making an error in decoding or pronunciation. By the end of the week each student should be able to read the entire story, and so receive recognition as achieving his or her personal best.

By achieving a personal best the student also receives an award which is motivational and assists the development of a positive self concept.

A common practice during the third phase of the lesson is to start with students developing "super sentences" which are sentences beginning with a capital letter, end with a period, have the vocabulary word used appropriately and spelled correctly, and are interesting. As the week progresses groups are formed to produce a "super paragraph" whereby sentences using the new words are organized into a complete paragraph and shared with the class.

During the summary phase the teacher will effect closure using a variety of methods. Students may be asked to re-define words, form sentences, compare new words with old ones, or any number of student centered activities designed to provide success as a motivator.

The strategies described here are selected from many which the teacher may use. Echo-reading, choral reading, webbing, and story mapping are some of the additional strategies which may be employed at the teacher's discretion.

Assessment in A-Priori

Assessment is essentially portfolio in nature. All student work is maintained in a folder and reviewed by both the A-Priori teacher and the regular teacher. Work which is sent home must be returned and placed in the folder. The comments and judgements made by teachers during their conferences are also included. By using this approach it is possible to maintain a very detailed record of student growth. This record is easily interpreted to parents during conferences and provides the professional staff with an excellent diagnostic tool as well as an evaluative one.

On the wall of the reading room the teacher or aide will maintain a chart of student progress. The chart allows students to quickly determine their

progress, and since it does not contain grades or "marks" it is a positive record in which each student may find a reason to be proud and self-confident.

Problem

There are times that an individual teacher, school, or district may "jump on a bandwagon" with respect to education innovation without examining the effectiveness of the program in terms of student cognitive development. The problem then is to determine if the A-Priori Intervention approach is superior, with respect to student growth, to the traditional skills based intervention programs. While the same problem was addressed in each investigation, the problem was approached in different ways, depending on the school district. Each of the investigations will be reviewed separately, followed by a synthesis of results and suggestions.

Investigation One

The first investigation was of a pilot program in Vermilion Parish, Louisiana. The subjects were first grade students participating in the district's Chapter One Reading Program. The control group consisted of the 207 students enrolled in the remedial program during the 1990-91 school, year when the traditional skills based program was used. The experimental group consisted of the 308 students enrolled in the first grade A-Priori program during the 1991-92 school year. While these represented different students, they may be considered equivalent since in each case the students met the same criteria for inclusion into the program.

The null hypothesis tested was that there would be no statistically significant difference in growth of reading skills between the control and

experimental groups as measured by the California Achievement Test.

Procedurally the Spring 1990 CAT test reading scores were used as a pre-test for the control group with the Spring 1991 reading scores being used as the post test. The difference in mean scores represented the mean growth of the students. In a similar fashion, the Spring 1991 CAT reading scores were used as pre-test for the experimental group with the Spring 1992 scores being the post test. As with the control group, the growth in scores was used for statistical analysis.

Scores on the pre and post tests were converted to Normal Curve Equivalent Scores (NCE) for purposes of analysis. As can be seen from Table One, the mean growth for the control group was 15.9555 while the experimental group score was 14.5818. Applying a two-tailed t-test resulted in a t of 0.314 and p= 0.751, thus supporting the null hypothesis that there is no significant difference between the A-Priori and traditional skills intervention programs.

TABLE ONE

MEAN GROWTH OF COMPARATIVE GROUPS IN INVESTIGATION ONE

GROUP	N	MEAN GROWTH	SD	t	p
Control (traditional)	207	15.9555	11.7439		
				.314	.751
Experimental (A-Priori)	308	14.5818	8.5406		

Investigation Two

The second investigation took place in a pilot program in St. Landry Parish, Louisiana where 16 students were followed longitudinally over a two

year period of time as they passed from grade to grade. The grade levels included grades one, two, and three for the first year where the traditional skills intervention approach was used and grades two, three, and four for the second year where the same students received the A-Priori intervention approach. The traditional approach was considered the control group while the A-Priori approach was considered the experimental group. New students who entered the program during the two year period were not considered in the statistical analysis and neither were students who left the program during that time due to re-location. In this way, the same group of students was utilized for the two years of the study.

In this investigation three null hypothesis were tested:

1) There will be no statistically significant difference between the control group experimental groups in total reading score growth as measured by the California Achievement Test.
2) There will be no statically significant difference between the control and experimental groups in reading comprehension as measured by the California Achievement Test.
3) There will be no statistically significant difference between the control and experimental groups in vocabulary growth as measured by the California Achievement Test.

As with investigation one, the pre test was the California Achievement Test given the Spring prior to the student qualifying for and receiving supplemental instruction under the Chapter One program. The post test was the following Spring results of the CAT.

Scores were converted to NCE for purpose of analysis using a one tailed t-test. As can be seen from table two mean scores actually declined slightly, though not at a statistically significant level. Hence the null hypothesis is

supported. If the total number of students was divided into three groups with group one being students studied in grade one and then passing to grade two, group two being students studied in grade two and passing to grade three, and group three being those students in grade three passing to grade four, there is no significant difference in growth and the various null hypothesis are all accepted. This is dramatically shown in tables three, four, and five. Hence, looking at total reading, comprehension, and vocabulary scores it can be stated that the A-Priori intervention program does not result in any statistically significant change in student growth as measured by the CAT.

TABLE TWO

MEAN GROWTH DIFFERENCES BETWEEN APPROACHES BY AREA FOR ALL GROUPS IN INVESTIGATION TWO*

AREA	N	MEAN DIFFERENCE	SD	t	p
Vocabulary	16	-5.625	30.524	-0.74	0.47
Comprehension	16	-0.937	20.818	-0.18	0.86
Total Reading	16	-0.500	23.492	-0.09	0.93

* Difference between control and experimental yearsTABLE THREE

MEAN GROWTH DIFFERENCES BETWEEN APPROACHES BY AREA FOR GROUP ONE IN INVESTIGATION TWO*

AREA	N	MEAN DIFFERENCE	SD	t	p
Vocabulary	7	4.000	38.267	0.28	0.79
Comprehension	7	- 0.429	21.609	-0.05	0.96
Total Reading	7	6.286	22.492	0.74	0.49

* Difference between control and experimental years

TABLE FOUR

MEAN GROWTH DIFFERENCES BETWEEN APPROACHES BY AREA FOR GROUP TWO IN INVESTIGATION TWO*

AREA	N	MEAN DIFFERENCE	SD	t	p
Vocabulary	4	-8.000	14.855	-1.08	0.36
Comprehension	4	-9.250	9.251	-2.00	0.14
Total Reading	4	-9.250	12.606	-1.47	0.24

* Difference between control and experimental years

TABLE FIVE

MEAN GROWTH DIFFERENCES BETWEEN APPROACHES BY AREA FOR GROUP THREE IN INVESTIGATION TWO*

AREA	N	MEAN DIFFERENCE	SD	t	p
Vocabulary	5	-17.200	28.623	-1.36	0.24
Comprehension	5	5.000	27.331	0.41	0.70
Total Reading	5	- 6.400	23.533.	-0.61	0.58

Limitations and Assumptions

The investigation was necessarily retrospective since neither district undertook a statistical study on the effectiveness of the program before expanding their respective programs. The data, however, is still valid. Had the districts elected to undertake more meaningful program evaluation they may have elected to use an attitudinal survey instrument with both students and

teachers. This, however, was not done so that comments in the analysis and conclusion section are based on post program implementation comments and observations by teachers.

One can always suggest that the various teachers were not of equal competence. However, all teachers were fully certified and those using the A-Priori approach were fully trained and wanted to use the intervention strategy, so we must assume that teaching was equally effective for all groups.

Analysis and Conclusions

In each of the school districts where investigations were undertaken a decision was made to expand and enlarge the A-Priori program. Needless to say the decisions were not based on statistical data since in both cases the mean growth as measured on the CAT was actually lower, though not significantly so, for the A-Priori approach when compared to the traditional skills intervention model. One could logically ask why a school or district would change and approach which has not demonstrated itself to be superior in results? The question deserves some answers.

First it must be stated that the investigations reported and synthesized here were done using file data and after the decision was made to expand the programs. It may seem that such decisions are not justified, yet they may be.

There are frequently multiple pathways to the same goal. If one has a choice, and the results are the same, it is appropriate to select the pathway you are most comfortable with. If, in fact, the professional staff and the students enjoy using the A-Priori approach, then it is clearly acceptable to do so, so long as the results are roughly equivalent. In post-program implementation discussions with teachers and administrators it was clear that all of the involved professionals preferred the A-Priori approach. We can probably recall the now

famous Hawthorne experiments at a Western Electric plant conducted by Elton Mayo between 1923 and 1932 where it was shown that change, any change, produced a temporary improvement in productivity and worker morale. In a similar fashion perhaps a change in program which produces a more invigorated staff, or happier students is also justified--even if the test results do not support the contention that the approach is superior from a skill development perspective.

A second consideration is the standardized test itself. Basic skills tests are of one type and depend on, for the most part, responses to multiple choice items. It is certainly possible that students in the A-Priori program have learned vocabulary and developed some reading skills, it is also possible that the standardized test is not testing what the students have learned, but their ability to analyze the examples on the test. It is conceivable, though not by any means certain, that the students may do better on free response items where they are allowed to synthesize creatively, rather than select from pre determined choices.

A-Priori may be a valid choice for any school district. What must be remembered is that one should not necessarily expect significant improvement on standardized tests. The investigations reported here may or may not have similar results when tried in other districts. The fact that the results show no significant difference means only that compared to what the reporting districts used there was no change in student performance. The results can not be used to compare or pre-judge what the effect could be in another district using a different intervention system with different students. If any district elects to run a pilot project using A-Priori, or any specific approach, the research does strongly suggest that the pilot be conducted in such a way so as to statistically determine

if the approach , with respect to student performance, is superior or inferior to that which is now being used. Finally, in evaluating the pilot, a wise district would also utilize an attitude inventory for both teachers and students. Combining the results of student growth data and attitudinal surveys provides the soundest foundation for making an ultimate decision on this or any program.

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